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IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Charles K. Rhodes and Keith Boyer

Serial No.: 10/600,141

Examiner:

Filing Date: June 20, 2003

Group Art Unit: 2828

Title: Ultrabright Tunable Coherent Multikilovolt X-ray Source

COMMISSIONER FOR PATENTS

P.O. Box 1450, Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

- ☐ under 37 CFR 1.97(b), or  
(Within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97(c) together with either a:
- ☐ Certification under 37 CFR 1.97(e), or
- ☒ a \$180.00 fee under 37 CFR 1.17(p), or  
(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97(d) together with a:
- ☐ Certification under 37 CFR 1.97(e), and
- ☐ a petition under 37 CFR 1.97(d)(2)(ii), and
- ☐ a \$130.00 petition fee set forth in 37 CFR 1.17(i)(1)  
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)
- ☒ A check in the amount of \$180.00 is enclosed herewith.
- ☐ Please charge to Deposit Account #50-1491 the amount of \$ \_\_\_\_\_.
- At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 50-1491 pursuant to 37 CFR 1.25.
- ☒ Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.
- ☐ A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO 1449, as presently understood by the individual(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

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Respectfully submitted,

By: Samuel M. Freund  
Attorney/Agent for Applicant(s)  
Samuel M. Freund  
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Date: March 30, 2005

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Date of Deposit or Transmission: March 30, 2005  
Typed Name: Chad Cassio

Signature: Chad Cassio

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Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

Sheet	1
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**Complete if Known**

Application Number	10/600,141
Filing Date	June 20, 2003
First Named Inventor	Charles K. Rhodes
Art Unit	2828
Examiner Name	James Vannucci
Attorney Docket Number	UIC.02USU1(S-041101)

## U. S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

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		Application Number	10/600,141
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		First Named Inventor	Charles K. Rhodes
		Art Unit	2828
		Examiner Name	James Vannucci
Sheet 2	of 5	Attorney Docket Number	UIC.02USU1(S-041101)

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	AA	BORISOV, A.B. et al. "Ultrahigh power compression for x-ray amplification: multiphoton cluster excitation combined with..." J of Phys, Vol. 28, 1995, pgs 2143-2158	
	AB	MCPHERSON, A. et al "Multiphoton-induced x-ray emission a..." Department of Physics, University of Illinois at Chicago, Letters to Nature, Vol. 370, Aug. 25, 1994, pgs 631-634	
	AC	KONDO, K. et al. "Wavelength dependence of multiphoton-induced Xe(M) and Xe(L) emissions..." Letter to the Editor, Journal of Physics, Vol. 30, No 18, 11997, pgs. L2707-L2716	
	AD	BORISOV, A.B. et al. "Observation of relativistic and charge-displacement self-channeling..." Laboratory for Computer Simulation, Research Computer Center, Moscow State	
	"	University, Moscow, Russia, General Physics Institute, Academy of Sciences of Russia, Moscow, Russia, Department of Physics, University of Illinois at Chicago, Illinois,	
	"	Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico, Physical Review Letters, Volume 68, Number 15, April 13, 1992.	
	AE	BORISOV, A.B. et al. "Stable relativistic/charge-displacement channels in ultrahigh power density..." Proc. National Academy of Sciences, Vol. 95, July 1998, pgs. 7854-7859	
	AF	BORISOV, A.B. et al. "Z-l of Xe(M) and Xe(L) emissions from channeled propagation of intense fem..." Letter to the Editor, Jour. of Physics, Vol. 29, 1996, pgs. L113-L118	
	AG	MCPHERSON, A. et al. "Competition between multiphoton xenon cluster excitation and ..." Letter to the Editor, Jour. of Phys, Vol. 29, 1996, pgs. L291-L297.	
	AH	BORISOV, A.B. et al. "Intensity dependence of the multiphoton-induced Xe(L) spectrum produced..." Letter to the Editor, Jour. of Phys, Vol. 30, No. 17, 1997, pgs. L767-L775	

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	AI	BORISOV, A.B. et al. "Stable self channeling of intense ultraviolet pulses in..." Journal of Optical Society of America, Volume 11, Number 10, October 1994, pgs. 1941-1947.	
	AJ	BOYER, K. et al. "Atomic inner-shell induced by coherent..." Dept. of Physics, University of Illinois at Chicago, Phys Review Letters, Vol. 54, No. 14, Jan. 28, 1985, p1490-1493	
	AK	SCHROEDER, W.A. et al. "Pump laser wavelength-dependent control of the efficiency of kilovolt..." Jour. of Physics, Vol. 31, 1998, pgs.5031-5051	
	AL	SCHROEDER, W.A. et al. "An efficient, selective collisional ejection mechanism..." Journal of Physics B: Atomic, Molecular and Optical Physics, Volume 34, 2001, pgs. 297-319.	
	AM	PLECHATY, E.F. et al. "Tables and Graphs of Photon-Interaction Cross Sections from 0.1 keV..." Lawrence Livermore Laboratory, November 11, 1981.	
	AN	OMENETTO, F.G. et al. "High-brightness terawatt KrF* (248 nm) system," Applied Physics B, Volume 64, 1997 pgs. 643-646.	
	AO	Wagner, R, et al. "Electron acceleration by a laser wak..." Center for Ultrafast Optical Science, Physical Review Letters, The Amer Physical Soc, Vol. 78, No.16, pgs. 3125-3128	
	AP	COWAN, R., "The theory of Atomic Structure and Spectra," University of California Press, September, 1981	
	AQ	WANG, X. et al. "Electron acceleration and the propagation of ultrashort..." Physical Review Letters, The Amer Physical Soci, Vol. 84, No 23, June 5, 2000, pgs.5324-5327	
	AR	MCPHERSON A. et al. "Evidence of enhanced multiphoton (248 nm) coupling from single-pulse ..." J. Phys. B. At. Mol. Opt. Phys. 30 (1997) pgs L767-L775	

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	AS	MAROWSKY, G. et al."Hohle Atome-Eine Neue Form von Hochangeregter Materie," Neue Zürcher Zeitung, Number 254, November 1, 1995, S.42, with accompanying translation	
	AT	BOYER, K. et al."Superstrong coherent multi-electron intense-field interaction" J. Phys. B. At. Mol. Opt. Phys. 27 (1994) pgs L633-636	
	AU	BORISOV, A.B. et al."Dynamics of optimized stable channel formation of intense laser pulses with the ..." J. Phys. B. At. Mol. Opt. Phys. 32 (1999) pgs 3511-3525	
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	AW	SOLEM, J.C. et al."Prospects for X-Ray Amplification with Charge-Displacement Self Channeling." IEEE Jour. of Quan. Elec. Vol. 25 No. 12 Dec. 1999 pgs 2423-2430	
	AX	OMENETTO, F. et al."Simultaneous generation of spectrally distinct third harmonics in a photonic crystal fiber." Opt. Lett. Vol. 26 No. 15 Aug. 1, 2001 pgs 1158-1160	
	AY	SNYDER, J.D. "Optical Waveguide Theory" Pub. 1983 by Chapman and Hall Ltd.	
	AZ	SCHAWLOW, A.L. "Infrared and Optical Masers" Physical Review Vol. 112 No. 6 Dec. 15, 1958, pgs 1940-1949	
	BA	STOCKHOLM, L.V.H. "Formation of True X-Ray Images by Reflection on Crystal Mirrors" Zeitschr. f. Kristallographie 101, 17 (1939) pgs 17-29	
	BB	VINOGRADOV, A.V. et al. "The problem of laser radiation sources in the far ultraviolet and X-ray regions." Soviet Physics Jetp Vol. 36 No. 6 June 1973 pgs 1115-1119	

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	A	International PCT Search Report January 25, 2005	

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